

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Vanguard Garments Ltd. (New location)
Address of the Factory	: 388/617, Colonel Jones Road, Pahartali, Chittagong.
Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 14-July-14
Fire & Electrical assessment conducted by	: Alliance
Date of Fire & Electrical Inspection	: 13-July-14
BGMEA Membership No	: 331

BASIC INFORMATION:

There is one building in the factory premises. The following general information was noted:

- i. Building Usage Type : Garments Factory.
- ii. Structural System : RCC moment resisting frame structure .
- iii. Floor System : Beam- slab.
- iv. Floor Area : 162,750 sft
- v. No. of Stories : Nine Storied with One Basement
- vi. Construction Year : 2011-2014
- vii. Foundation Type : Pile Foundation
- viii. Design Drawings : Not Available.
- ix. Soil investigation Report : Available
- x. Construction Materials : RCC brick chips.
- xi. Generator : Ground Floor.

RECOMMENDATIONS FOR CORRECTIVE ACTION:

The recommendations of corrective action for Structural, Fire and Electrical Safety comprises of Short Term, Mid Term and Long Term basis are as follows:

The recommendations for Structural Safety corrective actions are:

Immediate : NA

Short Term: (3 Weeks) :

- i. Designate a representative as the Factory Load Manager. The Factory Owner shall ensure that at least one individual, the Factory Load Manager who is located onsite full time at the factory, is trained in calculating operational load characteristics of the specific factory. The Factory Load Manager shall serve as an ongoing resource to RMG vendors and be responsible to ensure that the factory operational loads do not at any time exceed the factory floor load limits as described on the Floor Load Plans.

Mid Term (6 Weeks) :

- i. Factory Owner should complete the DEA report as per Alliance Standard or Guideline.

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- ii. Have a qualified structural engineer provide further analysis and investigation of the structural deficiencies. The structural engineer shall also provide remediation documents if required..
- iii. Confirm steel reinforcing configuration (number and size of bars) within all columns in the building via additional ferro-scanning and destructive testing as described in the Alliance Assessment Protocols section 3.D. This work should be completed by a qualified structural engineer in conjunction with preparation of as-built drawings (detailed elsewhere).
- iv. Engage a qualified structural engineer to confirm and document that provisions have been made to accommodate concentrated loads. If provisions have not been made, have a qualified structural engineer develop a remediation plan.
- v. Engage a qualified structural engineer to develop the required documents to confirm the structural integrity of the buildings. Documents must comply with the Alliance Standard Part 8 Sections 8.19 and 8.20
- vi. Under guidance from a qualified structural engineer, address all areas of needed maintenance by correcting the identified issues.
- vii. Have a qualified structural engineer develop Floor Loading Plans per the requirements of Part 8 Section 8.20.5.3.
- viii. Provide signage or the appropriate markings at all areas used for storage to indicate the acceptable loading limits detailed in the Load Plan.

Long Term (6 Months) :

- i. Provide occupancy certificate for review.

The recommendations for Electrical Safety corrective actions are:

Immediate	NA
Short Term (3 Weeks)	<p>Indoor electrical installations that are accessible to unqualified persons shall be made with metal-enclosed equipment. Switchgear, unit substations, transformers, pull boxes, connection boxes, and other similar associated equipment shall be marked with appropriate caution signs.</p> <p>Entrances to rooms and other guarded locations that contain exposed live parts shall be marked with conspicuous warning signs forbidding unqualified persons to enter. Caution, warning, danger signs or labels should meet the following requirements: (1) The marking shall adequately warn of the hazard using effective words and/or colors and/or symbols. American National Standards Institute ANSI Z535.4-2011, Product Safety Signs and Labels, provides guidelines for suitable font sizes, words, colors, symbols, and location requirements for labels. (2) Shall be permanently affixed to the equipment or wiring method and shall not be hand written. Exception, portions of labels or markings that are variable, or that could be subject to changes, shall be permitted to be hand written and shall be legible. (3) The label shall be of sufficient durability to withstand the environment involved. ANSI Z535.4-2011, Product Safety Signs and Labels, provides guidelines for the design and durability of safety signs and</p>

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	labels for application to electrical equipment
Mid Term (6 Weeks)	<p>Establish periodic safety inspection program of the electrical system components and keep documented..</p> <p>Have a qualified Electrical Engineer develop as-built electrical drawings providing detailing of key components of the electrical system.</p> <p>Provide dedicated neutral for each circuit according to the standard requirement.</p> <p>Led telecommunication or antenna cables separately to the main point of service. Power and telecommunications cables must have separate entrance.</p> <p>Provide capacity information labels (Maximum current rating, no of circuit breakers etc.) for Switchboards and distribution boards.</p> <p>Provide electrical insulation mats in front of substation.</p> <p>Ensure switchboards and/or distribution boards provided with physical means to prevent the installation of more over current devices than that number for which the panel board was designed, rated, and listed. Means of prevention of installing exceeding the designed number of devices is described in section 408.54, NFPA70-2011.</p>
Long Term (6 Months)	<p>Have a qualified Electrical Engineer design a lightning protection system according to the BNBC requirements.</p> <p>.Complete thermographic scans at least on a three year cycle. Thermographic scans should be completed in accordance with the Standard for Infrared Inspection of Electrical Systems & Rotating Equipment and NFPA70B or a comparable standard.</p> <p>Develop an Insulation Resistance Measurement Program that ensures deterioration of insulation resistance will be identified quickly. Testing should be in compliance with International Electrical Testing Association (NETA). All transformers, switchgears etc. shall be subject to an insulation resistance measurement test to ground after installation but before any wiring is connected. Insulation tests shall be made between open contacts of circuit breakers, switches etc. and between each phase and earth.</p>

The recommendations for Fire Safety corrective actions are:

Immediate (3 to 6 Days)	N/A
Short Term (3 Weeks)	N/A

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<p>Mid Term (6 Weeks)</p>	<p>Apply to appropriate authority in an expeditious manner for issuance of the Certificates of Occupancy for each building and ancillary structure according to building use.</p> <p>Install identification signage at the required locations. The five basic types of identification signs are as follows: Type A- Control Valve Sign Type B- Multi- Purpose Text Signs Type D- Fire Alarm Sign Type E- Hydraulic Calculation</p> <p>Sign Reference NFPA 13 for signage requirements.</p> <p>Install required identification signs at the noted locations. Signage shall comply with NFPA 14.</p>
<p>Long Term (6 Months)</p>	<p>Provide fire-resistive rated opening protection for rated walls of the lifts in accordance with Alliance Standard Sections 4.6. Consult a qualified Fire Protection Engineer to design the required opening protectives or penetration systems.</p> <p>Provide required fire rated construction 10 ft beyond the ends of the exterior stairs. Enclose any openings (windows, etc.) with required fire rated construction within that 10 ft wall section. The rated assembly shall be approved and/or designed by a qualified Fire Protection Engineer</p> <p>Provide fire-resistive rated construction barriers and associated opening protection for exit enclosures in accordance with Alliance Standard Section 6.3.1.2. Consult a qualified Fire Protection Engineer to design the required rated construction barriers.</p> <p>Provide fire-resistive rated opening protection for rated walls and assemblies in accordance with Alliance Standard Sections 4.6 and 4.7. Consult a qualified Fire Protection Engineer to design the required penetration systems.</p> <p>Replace non-compliant doors and frames in the means of egress with side swinging doors.</p> <p>Provide modifications to the fire pump system in accordance with the Alliance Standard.</p> <p>Install initiating devices and notification appliances as required by the Alliance Standard and NFPA 72. Devices should be part of an automatic fire alarm and detection system for the facility. All fire alarm installations shall be submitted for review by the Alliance prior to commencement of installation.</p>